



Clarion Environmental Lubricants

The webinar will begin in less than 10 minutes.

Erica McDonald



Clarion Environmental Lubricants

The webinar will begin in less than 5 minutes.

Erica McDonald



Clarion Environmental Lubricants

Erica McDonald

Erica McDonald

- Product Specialist, CITGO Petroleum Corporation
- 10 years of lubrication experience
- Career focus: lubrication quality control and oil analysis.
- Current role centers on the development and improvement of industrial, environmentally friendly, and food grade lubricants.
- BS in Biology, and a minor in Chemistry from Southern Illinois University, Edwardsville





Agenda

- North American Market
- Application Outlook
- Environmental Market Overview
- Why Environmental Products?
- Environmental Applications
- VGP Applications
- VGP Standards
- Clarion Green Products



North American Market

- North America has the highest growth rate of 7.1% ACGR.
- Estimated Market Value 2018 - USD \$849,000,000
- Estimated Market Value 2025 - USD \$1,370,000,000

		7.1% CAGR Shown in MM USD					
2018	2019	2020	2021	2022	2023	2024	2025
849	908	972	1,041	1,115	1,194	1,279	1,370

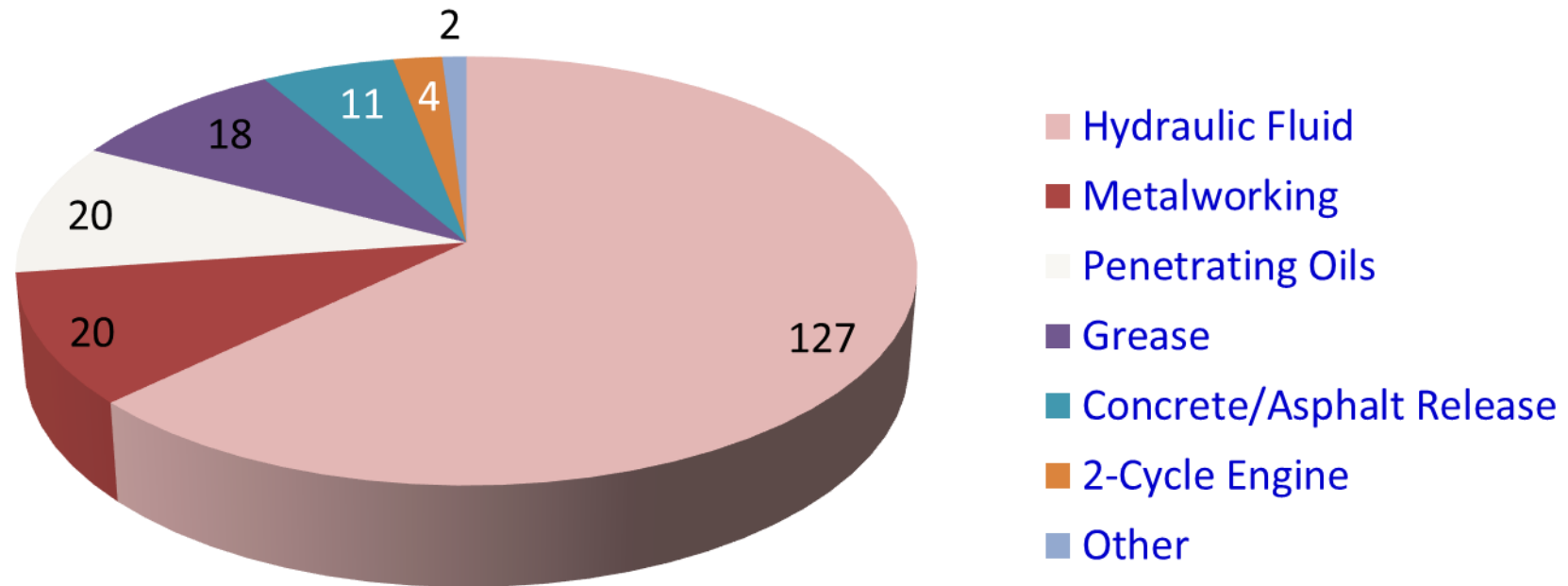


Application Outlook

- Hydraulic fluids and tractor transmission oils
- Greases and stern tube greases
- Stern tube oils
- Chainsaw Oils
- Concrete release agents
- Wire rope oils
- Two-stroke oils
- Industrial and marine gear oil

Environmental Products in Market

Number of Products



Why Environmental Products

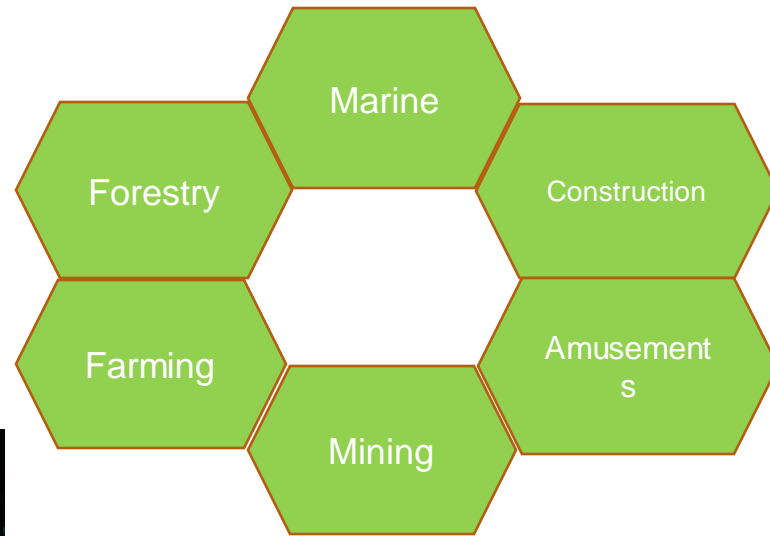
- 2.5 billion gallons of lubricants sold in North America
- 60% goes unaccounted for and ends up in rivers, lakes and on the ground



Source: "The Advantages and Disadvantages of Biodegradable Lubricants" Josh Pickle, Machinery Lubrication, Noria Corporation 2/2012



Environmental Applications



VGP Applications



Harbor Dock and Towing - Sulphur LA



VGP Standards

- The EPA VGP - 2013 covers discharges from Marine vessels
- Commercial vessels 79 feet and over. Operating In US territory waters.
- All vessels less than 79 feet are not covered by VGP
- All vessels covered under VGP must use EALs



2013 Vessel General Permit

Defines Environmentally Acceptable Lubricants (EALs)

- Biodegradable
- Minimally Toxic
- Not Bioaccumulative
- Defines each of the above in Appendix A



2013 Vessel General Permit Definitions

Biodegradable

- Lube formulas with at least 90% readily biodegradable component
- Grease formulas with at least 75% readily biodegradable
- Up to 5% of lube formula can be non-biodegradable, but not bio accumulative. Balance must be inherently biodegradable.
- For grease, up to 25% can be either inherently or non-biodegradable, but not bio accumulative.



Terminology

ASTM D5864 defines biodegradation as: “The process of chemical breakdown or transformation of a substance caused by organisms or their enzymes.”

Readily Biodegradable

Biodegrades rapidly

Inherently Biodegradable (propensity to biodegrade)

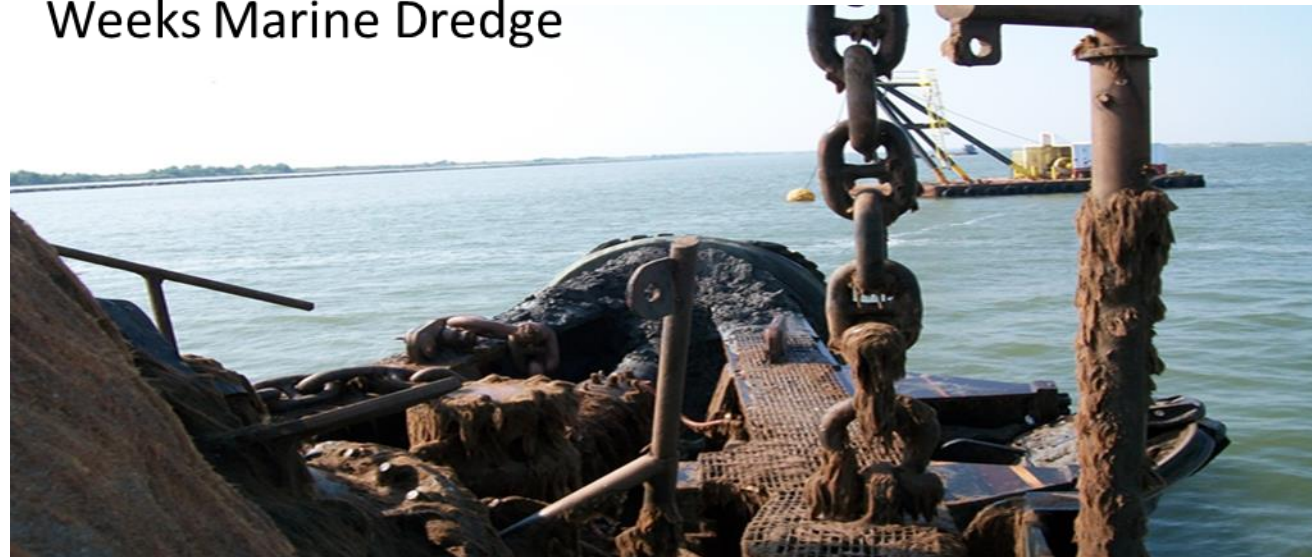
Biodegrades slowly

Clarion Green Products



CLARION BIO or Syn gear oil 320
CLARION Green BIO 68

Weeks Marine Dredge



Clarion Green Products



Callon Dredging-Galveston



Enterprise Marine
CLARION Green BIO 46

Weeks-Marsh Buggy
CLARION Green SYN AW 46





Clarion Green Products – Users (other)

- Department of Transportation
 - Roads and Bridges
- Corp of Engineers
 - Locks and Dams
- Heavy Equip Contractors
 - Environmentally Sensitive Areas
 - Contracted for Environmental Lubricants



Clarion Green Synthetic Fluids

- Readily biodegradable, meets 2013 VGP requirements
- Fully synthetic ester-based hydraulic fluids
- ISO 22, 32, 46,68



Clarion Green Bio

- Readily biodegradable, meets 2013 VGP requirements
- High oleic natural ester hydraulic fluids
- ISO 32, 46, 68



Clarion Green Synthetic Gear Lubricants

- Fully synthetic ester-based gear lubricants
- Readily biodegradable, meets 2013 VGP requirements
- ISO 150, 220, 320



Clarion Green AW Oils

- White mineral base (finished formula is not food grade)
- Inherently biodegradable, does not meet 2013 VGP
- Passes EPA static sheen test
- ISO 32, 46, 68



Clarion Green Gear Lubricants

- White mineral base (finished formula is not food grade), AGMA EP Oils
- Inherently biodegradable, does not meet 2013 VGP
- Passes EPA static sheen test
- ISO 220, 320, 460



Clarion – Peace of Mind

- Although all spills must be reported, users of Clarion Green products know that those products meet the relevant EPA or Coast Guard regulations
- Clarion products provide the protection needed for equipment used in and around marine environments



Questions

- Please post your questions using the Q&A function.



How to Contact Us

- Lubes Answer Line
- **800-248-4684**
 - 8:00 AM - 12:00 PM, 1:00 PM – 5:00 PM CT (Mon – Thurs)
 - 8:00 AM - 12:00 PM, 1:00 PM – 4:30 PM CT (Fri)
- lubeshelp@citgo.com
 - Available 24/7



Future Webinars

- ISO Cleanliness Requirements for Various Applications
December 10th
- Railroad Industry Products and Sales
December 17th